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Patent Claims

1. A method for assisting the driver of a vehicle (10) during a driving maneuver, wherein a reference trajectory (16) which corresponds to the driving maneuver and along which the vehicle (10) is to be moved is determined, and wherein the steering wheel position which is to be respectively set and which steers the vehicle (10) along the reference trajectory (16, 19) is indicated to the driver during the driving maneuver, characterized in that a steering angle deviation (d_{LW}) between the actual steering angle (δ_{ist}) which is actually set by the driver and the setpoint steering angle (δ_{soll}) which corresponds to the requested steering wheel position is corrected independently of the driver.

2. The method as claimed in claim 1, characterized in that the driver-independent correction of the steering angle deviation (d_{LW}) takes place only if the steering angle deviation (d_{LW}) lies within a predefined steering angle correction range (K).

3. The method as claimed in claim 1 or 2, characterized in that the longitudinal velocity (v) of the vehicle is influenced independently of the driver when there is a steering angle deviation (d_{LW}) which lies outside the steering angle correction range (K).

4. The method as claimed in claim 3, characterized in that the velocity of the vehicle is influenced as a function of the absolute value of the steering angle deviation (d_{LW}).

5. The method as claimed in claim 3 or 4, characterized in that a steering angle tolerance range (δ_{min} to δ_{max}) which defines the permissible steering angles is determined during the driving maneuver as a function of the current position ($x_{F,akt}/y_{F,akt}/\psi_{F,akt}$) of the vehicle, and the influencing of the longitudinal velocity (v) of the vehicle depends on the tolerance interval (δ_{soll}-δ_{min} or δ_{max}-δ_{soll}) between the setpoint steering angle (δ_{soll}) and the tolerance range limits (δ_{min}

and δ_{max}).

6. The method as claimed in claim 5, characterized in that a rotational angle tolerance range is determined in order to acquire the steering angle tolerance range, wherein the current rotational angle ($\psi_{F,akt}$) between the longitudinal axis (71) of the vehicle and a coordinate axis (y) of a fixed coordinate system (22) is increased or decreased until it is still just possible to determine a trajectory with respect to the target position (17).

7. The method as claimed in one of claims 4 to 6, characterized in that a smaller value is selected for the vehicle longitudinal velocity (v) the larger the absolute value of the steering angle deviation (d_{LW}) and/or the smaller the absolute value of the tolerance interval (δ_{soll}-δ_{min} or δ_{max}-δ_{soll}).

8. The method as claimed in one of claims 3 to 6, characterized in that the vehicle (10) is decelerated to the stationary state and held in the stationary state as long as, owing to the steering angle deviation (d_{LW}) which is present, the vehicle (10) would, when continuing to travel, assume a vehicle position from which the target position (17) can no longer be reached without interrupting the positioning of the driving maneuver.

9. The method as claimed in claim 8, characterized in that the vehicle (10) is accelerated again independently of the driver if the driver sets a steering wheel position which leads to a steering angle deviation (d_{LW}) which is acceptable and/or can be corrected independently of the driver.

10. The method as claimed in one of claims 1 to 9, characterized in that the steering wheel position which is to be set is indicated by means for providing audible information to the driver and/or means (13) for providing visual information to the driver and/or means (40 and 41) for providing haptic information to the driver.

11. The method as claimed in claim 10, characterized in that the means (40 and 41) for

providing haptic information to the driver have means for changing the steering wheel torque to be applied by the driver.

12. The method as claimed in one of claims 1 to 11, characterized in that the driving maneuver is a parking maneuver and the reference trajectory (16) indicates the ideal path from the current position ($x_{F,akt}/y_{F,akt}/\psi_{F,akt}$) of the vehicle to the parked position (17).

13. The method as claimed in one of claims 1 to 12, characterized in that, in the case of a vehicle (10) in the trailer mode, each position of the vehicle along the current reference trajectory (19) is assigned a setpoint bending angle (β_{soll}) between the longitudinal axis (71) of the vehicle and the longitudinal axis (72) of the trailer, and in that the current bending angle (β_{akt}) is determined and is compared with the corresponding setpoint bending angle (β_{soll}), wherein the longitudinal velocity (v) of the vehicle is influenced independently of the driver when there is an angular deviation between the setpoint bending angle (β_{soll}) and the current bending angle (β_{akt}).

14. A device for carrying out a method for assisting the driver during a driving maneuver as claimed in one of claims 1 to 13, having means (12) for determining a reference trajectory (16) which corresponds to the driving maneuver, and means (13; 40 and 41) for indicating the steering wheel position which is to be set by the driver and which steers the vehicle (10) along the reference trajectory (19), characterized in that a steering angle deviation (d_{LW}), detected by means of an evaluation device (12), between the actual steering angle (δ_{ist}) which is actually set by the driver and the setpoint steering angle (δ_{soll}) which corresponds to the requested steering wheel position is corrected by steering correction means which can be actuated independently of the driver.